REMARKS

Claims 1-12, 14-19, and 21-30 are pending in this Application. Claims 1, 2, 9, 11, 13, 14, 16-19, and 21 have been amended, claims 13 and 20 have been cancelled, and claim 30 is new. No new matter is added.

Claim Objections

The Examiner objected to original claims 1-10 because there was no antecedent basis for the term "first current node" in claim 1, and claims 2-10 depended therefrom. Amended claim 1 recites antecedent basis for all terms.

Specification

The Examiner objected to the previous form of the Abstract. Applicant has submitted a substitute Abstract addressing the Examiner's concerns.

Claim Rejections – 35 USC § 101

The Examiner rejected original claims 1-29, contending that they did not recite statutory subject matter. Applicant disagrees with the Examiner's contention, but has amended independent claims 1 and 19 to make explicit what Applicant believes was previously implicit, and amended independent claim 11 to more directly state the functional nature previously recited. Amended claims 1 and 19 recite "computer implemented" methods, and amended claim 11 recites that the data structure stored on the computer-readable medium is "used to assist in the traversal of a dynamic tree." Accordingly, all claims recite statutory subject matter.

Claim Rejections – 35 USC § 102

The Examiner rejected original claims 11-18 as allegedly being anticipated by Berry et al. (U.S. Pat. No. 6,728,955 B1) ("Berry"). The Examiner also rejected original claims 19-24 as allegedly being anticipated by Grand (U.S. Pat. No. 4,823,310). Applicant disagrees with the Examiner's contentions regarding the teachings of Berry and Grand, and disagrees that either reference anticipates Applicant's claims.

102(e) -- Berry

Despite the Examiner's assertions to the contrary, Berry does not teach a data structure for managing a plurality of elements related by hierarchy where the data structure represents ones of the elements itself. The Examiner points to Figs. 11A-B, Col. 16, lines 25-40, and Col. 17, lines 15-30 of Berry in support of this assertion, but Berry itself makes clear that the data structures cited by the Examiner are not used to manage the elements related by hierarchy themselves, but are used solely to store statistical information about how or where a processor spent time when executing computer code so that a programmer (i.e, a person) can improve that code if it causes a processor to spend too much time running certain routines. In other words, the data structure disclosed by Berry is used by a person to diagnose problems with something external to the elements making up the hierarchy, and Berry discloses nothing about using its data structures to manage the plurality of data structures related by hierarchy themselves. *See, e.g.,* Col. 1, lines 61-64; Col. 2, lines 33-37; Col. 14, lines 19-27, 34-35; Col. 15, lines 22-29; Col. 16, lines 48-50; Col. 17, lines 15-20. Nor does Berry suggest or imply such a data structure. *See Id.*

Berry also fails to disclose a data structure including a "unique counter value." Besides certain pointers, the contents of the data structures disclosed by Berry are "an address," a "base time," a "cumulative time," and a general reference to "statistical information" about a "routine" running on the processor being profiled by the process in Berry. *See* Col. 16, lines 25-28; Col. 17, lines 17-19. None of these values are necessarily unique with respect to each of the plurality of elements in the hierarchy to be managed as required by original and amended claim 11.

Accordingly, for at least these reasons Berry does not anticipate the invention set forth in Applicant's original or amended claim 11. Similarly, for at least these reasons Berry does not anticipate claims 12 and 14-18 since they depend from an allowable base claim. Applicant notes in this regard that while claim 11 has been amended, the amendment is *not* made to overcome the rejection based on Berry. Rather, the amendment is made to more clearly and better describe the claimed invention and Applicant intends absolutely no surrender of equivalent subject matter in making the amendment. The rejections of claims 11-12, 14-18 should be withdrawn.

102(b) -- Grand

The Examiner's rejections of original claims 19-24 are based erroneous assertions of what Grand discloses and teaches. First, Grand does not teach a method for locating an updated continuation node in a dynamic binary tree where each node in the tree has a unique counter value. Rather, Grand teaches a method for locating and reading a *record* that may be stored in different nodes over time through the use of "update timestamps" and "deletion timestamps" that are unique only "over the period in which the ISAM file is 'open'" or being read. *See, e.g.,* Col. 4, lines 9-24. Applicant's original and amended claims 19-24 require that each *node* in the tree include a "unique counter value."

Second, Grand does not teach a method of locating an updated continuation node by receiving an abbreviated lineage for the last node visited in a tree as an input. Grand explicitly states that "[e]ach time a process reads a record of the ISAM file B-tree, *it saves three identification factors o[ff] the record* in a user block of local memory. The three identification factors saved are: the *disk memory address of the node* of that last read record, the *position of that last read record within the node*, and the *key of the last read record.* ... Then, when the process performs a sequential read (i.e., *a reading of the record succeeding the last read record*) at some later time, the process (1) accesses the node and the position of the last read record in the node *using the three saved identification factors.*" Col. 4, lines 26-38. The three identification factors utilized by the method in Grand do not constitute an abbreviated lineage for the last node containing the last read record.

Nor does Grand teach using an abbreviated lineage for the last node visited in the tree in order to locate an updated continuation node. The Examiner has pointed to lines 26-40 of Col. 4 in support of the contention that Grand anticipates Applicant's claims, but that section of Grand only states that if the process visits the node in which the previously read record was stored and determines that the record entries within that node have changed since the last read operation, the process "unlocks the node *and a search operation is performed to find the record whose key is immediately greater than the key of the last record stored in the user block* [i.e., memory]." Thus, Grand teaches nothing about using an *abbreviated lineage of the last node visited* in order to locate another node in the tree which may contain the record sought to be read.

Finally, rather than using the novel approach set forth by Applicant in claim 19 to efficiently locate another node in the tree which may contain the record to be read where the node that previously contained the record no longer exists, the method disclosed in Grand teaches that *"the B-tree is retraced* to find a more recent estimation of which node contains the given key number" of the record being sought. Col. 5, lines 9-13. Thus, Grand contains no teaching, disclosure or even a suggestion of how to locate an updated continuation node when the previous node visited no longer exists in the tree beyond the prior art method of "retracing the tree," one of the many things the processes set forth in original and amended claims 19-24 avoid.

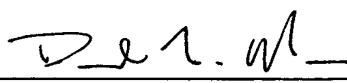Accordingly, the § 102 rejections based on Grand should be withdrawn.

Claim Rejections – 35 USC § 103

The Examiner rejected original claims 1-10 and 25-29 as allegedly being obvious over Grand, as applied by the Examiner to original claims 19-24, in view of a publication titled "Abstract Data Types: Specifications, Implementations, and Applications" by Dale et al. ("Dale"). However, as demonstrated in detail above, Grand does not anticipate or render original claims 19-24 obvious. Thus, the combination of Grand and Dale, even if such a combination was proper, and Applicant contends it is not, does not and cannot render claims 1-10 and 25-29 obvious as the Examiner contends.

Conclusion

All of the objections to the claims and specification have been remedied, and none of the bases for rejecting the claims can stand. The objections and rejections therefore should be withdrawn and the claims as currently presented allowed.

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